The Bound[less] Sea: Wilderness and the United States Exploring Expedition in the Fiji Islands

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Jason W. Smith

The Bound[less] Sea: Wilderness and the United States Exploring Expedition in the Fiji Islands

Abstract

The United States Exploring Expedition, which circumnavigated the world and surveyed the South Sea from 1838 to 1842, marked an important moment in Americans' changing perceptions of the Pacific Ocean from wilderness toward an ordered, knowable commercial space safe for the nation's maritime commerce. Nautical charts and the cartographic process were central to this transformation. Steeped in progressive notions of science and the supposed precision of cartographic method, the expedition's surveys charted waters that had once been little more than blank spaces in the maritime imagination. I argue that wilderness was an idea that transcended the North American forest, and one that stimulated a muscular naval science in the voyage of the Exploring Expedition. This article uses the expedition's survey of the Fiji Islands from May to August 1840 as a lens to examine the convergence of wilderness and naval science in the marine environment and in a larger maritime world undergoing political, commercial, environmental, and

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cultural changes. In the maritime imagination, the Fijis were a notorious wilderness of uncharted reefs and cannibals, but they were also waters that the United States sought to claim. The nautical charts produced by the expedition were at once powerful and flawed testaments to American commercial intentions and to the assumption that the United States could control the marine environment.

INTRODUCTION

> Queequeg was a native of Kokovoko, an island far away to the West and South. It is not down in any map; true places never are. —Herman Melville, *Moby-Dick*, 1851

> Always the edge of the sea remains an elusive and indefinable boundary. —Rachel Carson, *The Edge of the Sea*, 1955

The United States Exploring Expedition sailed at a crossroads of understanding about the natural world. In March 1839, seven months out of Hampton Roads, the six naval ships of the expedition set out to survey and chart the Pacific Ocean, an environment whose natural features and processes mariners, navigators, and scientists only vaguely knew. From a bluff high above the Pacific in the shadow of Cape Horn, Passed Midshipman William Reynolds looked out to the watery horizon. "Seated here alone," he wrote in his private journal, "at the very verge of the Western World with a waste of waters before me that for half the circuit of the Globe rolls on unbroken by a single Isle there was something so imposing in the sublime and solitary nature of the scene, that it seemed to me as if I were like the last man, looking upon Eternity." The men, he remarked, "were stricken and humbled into fear" by "one of nature's wildest scenes." Reynolds was a young naval officer and an aspiring naval scientist. Yet he understood the Pacific as a wilderness that seemed boundless. In 1839, Americans knew little about the Pacific Ocean—its coasts remained ill charted, its winds and currents still enigmatic, many of its islands thought to be the haunts of cannibals. American mariners perceived it as an ocean wilderness, sublime and terrifying, that the United States sought to claim as part of its burgeoning maritime empire.[1]

Such claims were the impetus for the Exploring Expedition. Dubbed the Ex. Ex., the expedition set out from Hampton Roads in the summer of 1838, determined the existence of the Antarctic continent, charted the islands of the South Sea, and mapped the Pacific Northwest before returning to New York City by way of the Cape of Good Hope in 1842. Some sixty thousand natural specimens, collected and catalogued by the expedition's six civilian naturalists, later formed the basis for the

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Smithsonian Institution's collection. This article is primarily interested in the expedition's nautical charts and their power to order, reenvision, and claim the sea. Cartography was a potent tool of American maritime empire. Charts and the cartographic process that created them provide a lens to consider changing ideas about the marine environment in the mid-nineteenth century. In particular, I examine the expedition's survey of the Fiji Islands of the southwest Pacific from May to August 1840. Cape Horn aside, the Fijis were the most infamous wilderness of the maritime world, a place where uncharted reefs merged with the supposed savagery of the people ashore. The Ex. Ex. intended to open these waters to safe navigation. But the sea and its people had an agency of their own that undermined the Americans' ideas about the ability of hydrographic science to represent the natural world on paper. The sea was an environment exceedingly difficult to control and claim.[2]

The idea of wilderness transcends land environments. In the nineteenth century, it crossed the beach to coastal waters labyrinthine in navigational hazards and extended also to the mysteries of the deep sea. Roderick Nash, the eminent scholar of American wilderness, remarked that the term could be applied to other environments "such as the sea and . . . outer space," but he did not pursue it. In *Wilderness and the American Mind*, Nash argued that wilderness was, among other things, "a state of mind," in which "a person feels stripped of guidance, lost, and perplexed." Wilderness seemed untouched by civilization—the domain of feral beasts and savages. Nineteenth-century American writers were drawn to wilderness as an environment that merged terror and inspiration in the sublime. It was a place that defied Americans' sense of things.

Nash's description might easily have been maritime. "The ocean," writes historian John Gillis, "is the favorite Western metaphor for chaos and confusion." Whales, sharks, cannibals, uncharted coasts, storms, sea serpents, or the disorientation of floating on a vast, windless sea fit Nash's terrestrial framework. But sea wilderness was also different. As settlers felled trees, hunted beasts, and fenced property—bringing change and order to the land—mariners continued to struggle with an ocean environment that seemed largely outside human control. Scientific understandings of the ocean, its depths and its sea life, and the larger patterns of water and air movement remained unclear. In many cases, the hydrography of coastlines was imperfectly charted or, worse, not charted at all. As historian Jeffrey Bolster has recently written, some American fishermen and government officials did, in fact, worry about human-affected changes to localized and coastal marine environments in the North Atlantic as early as the seventeenth century, and by the mid-nineteenth century, some professed serious misgivings about the North Atlantic's ability to sustain increased fishing. Human activity was affecting the marine environment. Yet, as Bolster admits, such cries were far from universal or conclusive. The

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sea had long "been imagined as limitless, unfathomable, implacable, and wild," he writes. Even as discernible changes in the North Atlantic began to appear at midcentury, Americans like Passed Midshipman Reynolds looked to the Pacific and saw a vast, boundless, and largely unknown marine environment.

Claiming this ocean for American maritime commerce was foremost an act of the mind. Controlling the sea required new understandings and representations derived from a powerful scientific belief that the sea could be known and represented on paper. Yet even as cartography laid powerful claims to the ocean, the dynamism and vastness of the marine environment eluded control and cartographic representation. Indeed, even today, as the ocean seems more prone to human change, it still remains, in many ways, eternal and uncontrollable in the American mind.

Examining the ocean as a historical environment can shed new light on the power and intentions of American exploration and cartography. By crossing the beach, environmental historians can see ocean islands and their coasts as environments that merge land and water. The Fiji survey, in particular, speaks to the role of navies and of military and scientific power in mediating Americans' place in natural environments. It builds on the growing current in environmental historiography that acknowledges the ocean itself as a changing historical environment that, in historian Helen Rozwadowski's words, is "inextricably connected to, and influenced by, people" and is "known through imagination as well as through direct experience." As Rozwadowski and others show, the sea itself is an important environment for historical analysis.[3]

WILDERNESS AND THE EX. EX.

At midcentury, many American mariners believed that the sea was a wilderness. As historian Gary Kroll argues in *America's Ocean Wilderness*, Americans have made sense of the unknown by drawing on familiar tropes. They invoked "the western frontier wilderness," he writes, "to understand frontiers like the ocean or outer space." Although Kroll is primarily interested in twentieth-century ocean exploration, wilderness in the American maritime imagination reaches back well into the nineteenth century and beyond. Among early accounts of English settlement in North America, writers like William Strachey referred to "winds and seas as mad as fury." In 1620, aboard the *Mayflower*, William Bradford gave thanks to God for land after sailing "over the vast and furious ocean" with its "perils and miseries." By the mid-nineteenth century, Americans were taking to the water in greater numbers and with greater frequency in the merchant service, the navy, and various fisheries from cod on the Grand Banks to sperm whales off the Galapagos. Yet their perceptions of the sea had not greatly changed. Here is

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J. Ross Browne, a writer and mariner aboard the whale ship *Styx* in the 1850s, describing a violent storm in the Gulf Stream. "Nothing," Browne wrote, "can be more bewildering to a youth, whose imagination naturally magnifies all the dangers of the deep, than to be roused up in the dead of night, when the ocean is lashed into a fury by a stiff gale." According to Browne, it was a "novel and startling scene that burst upon us with all its wildness." Such descriptions were common among literate American mariners, many of whom drew on the literary conventions of that era to describe scenes of nature that were simultaneously beautiful and terrifying. Whether relating mountainous waves off Cape Horn or days of floating, windless in the Horse Latitudes, mariners perceived the sea as a disorienting environment, largely outside their control. In a seafaring world of wooden hulls and canvas sails, mariners and their ships were continually subject to the vagaries and caprice of the ocean environment.[4]

The maritime literature of the era reflected and perpetuated wilderness. James Fenimore Cooper, Edgar Allan Poe, Herman Melville, and others wrote about the sea as untamable and unfathomable. For Cooper, the dangers of the sea tested the young nation. In works like *The Pilot* (1824) and *The Red Rover* (1828), Cooper placed the sea outside civilization. With harpoon in hand and covered in seaweed, *The Pilot*'s Long Tom Coffin represents the frontiersman gone to sea—a kind of salty Natty Bumppo. Meanwhile, in *The Life of Arthur Gordon Pym* (1838) and the short story "MS. Found in a Bottle" (1833), Poe created a gothic maritime frontier in which he consigned his characters to an otherworldly sea. In *Moby-Dick* (1851), Melville deemed the sea a "wonder-world." His white whale was "the ungraspable phantom of life" and "unpainted to the last." From the beach, Henry David Thoreau looked to the ocean and found an eternal wilderness just as he lamented its disappearance from the land. "The ocean is a wilderness," he wrote in *Cape Cod* (1864), "wilder than a Bengal jungle, and fuller of monsters." These writers tapped into a powerful idea of wilderness already rooted in maritime culture. The sea seemed unfathomable. It concealed truth in its depths. And it was central to a nation that, at midcentury, remained oriented as much to the sea as the expanding West.[5]

Ideas of wilderness influenced nascent science in the US Navy as well. Scientifically minded naval officers, in particular, believed that the sea could be known, surveyed, and charted in the interests of the nation's maritime commerce. There was much to be gained, in both an economic and cultural sense, in dismissing wilderness with an ordered, rational environment laid down on the chart using the latest cartographic methods. In this era, the navy institutionalized hydrography, defined as the study and charting of ocean depths, winds, currents, and meteorology. Naval hydrographers drew on a much deeper tradition of navigational science reaching back to the port charts and sailing directions of

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medieval Europe and the Renaissance Mediterranean. In 1830, the navy established the Depot of Charts and Instruments and subsequently undertook several surveys of important American coastal waters from the fishing grounds of Georges Bank off Cape Cod to Narragansett Bay and the mouth of the Savannah River. By 1842, the Depot had become the Naval Observatory and Hydrographic Office in Washington, a growing center of astronomic and hydrographic science. Under the command of Lieutenant Matthew Fontaine Maury, the observatory reached international prominence with its *Wind and Current Charts*, which Maury published from the logs of civilian and naval mariners. All this was indicative of an emerging naval science tied to the nation's growing maritime commerce and infused with ideas about the ability of humans to understand and control the marine environment.

Maury's work rested in a scientific faith that the workings of the sea could be systematically investigated, organized, represented, and harnessed. Maury understood the visual and imagined power of charts to guide the mariner and dispel wilderness. "He who undertakes to study [the ocean's] phenomena must cease to regard it as a waste of waters," Maury wrote, "then he will begin to perceive the developments of order and the evidences of design." He closed *The Physical Geography of the Sea* (1855), his most important scientific work, with a revealing metaphor. With a stock of charts and sailing directions from the observatory, Maury likened the navigator to a "backwoodsman in the wilderness" who "is enabled literally 'to blaze his way' across the ocean; not, indeed, upon trees, as in the wilderness, but upon the wings of the wind." To Maury, scientifically minded officers in the navy, and, indeed, the broader American scientific community, hydrography represented a powerful way to reimagine the sea. Chart and sextant assumed the place of axe and spade in remaking the marine environment.[6]

By the 1830s, various promoters in and outside the government were pushing for an exploring expedition, believing that hydrography and exploration would benefit maritime commerce and enhance the standing of American science in the eyes of Europe. Sea captains and merchants from the East India Marine Society of Salem, Massachusetts, along with an Ohio newspaper editor turned explorer named Jeremiah N. Reynolds called on Congress to outfit an expedition to Antarctica and the South Sea. The voyage would expand the nation's maritime frontiers by surveying and charting vaguely known waters. Secretary of the Navy James K. Paulding's orders to the expedition outlined its mission "for the purpose of exploring and surveying," to "determine the existence of doubtful islands and shoals," and "to accurately fix" them on the charts. These, Paulding declared, would "enable future navigators to pass over the track traversed by your vessels, without fear and without danger." Paulding's charge was similar to Maury's own vision. In an era when the nation's maritime commerce reached $223 million, the Ex. Ex. would be a maritime trailblazer.[7]

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Lieutenant Charles Wilkes, the forty-year-old naval officer commanding the Ex. Ex., embodied this scientific ethos. Although relatively junior in rank, Wilkes had an impressive background of scientific experience in an era when science remained on the fringes of the naval officer's profession. In the 1830s, Wilkes had studied cartographic method and practice under Ferdinand Hassler, first superintendent of the US Coast Survey. From there, he went on to participate in and lead many of the navy's early hydrographic surveys and to command the Depot of Charts and Instruments. This experience earned him command of the Ex. Ex. Although he clashed with Maury, his contemporary in naval science, both men held the same belief that science could order the sea, dispel wilderness, and promote American maritime commerce.

Wilkes's scientific ethos rested in the trigonometric survey, which he had learned from Hassler at the Coast Survey. This was a cartographic method based on a series of interlocking triangles and trigonometric calculations to determine exact distances between points. Its virtue lay in its supposed precision—the belief that the world could be represented exactly on the map. "The reliance to be placed upon hydrographical labors," Wilkes harped as he counseled his officers, "depends upon

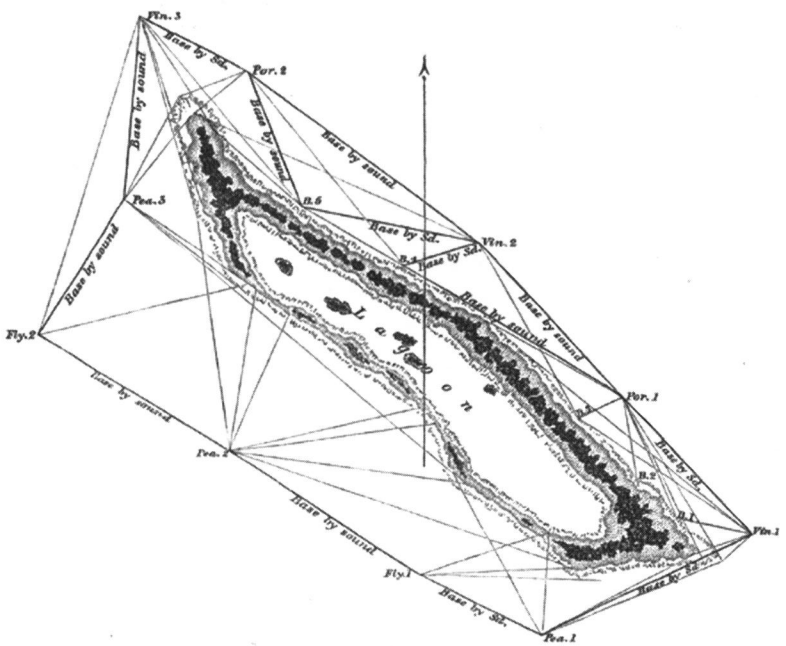

Figure 1: The men of the Ex. Ex. used the trigonometric survey, in which islands like the one shown here were bracketed by triangles whose sides could be determined by mathematical precision. Credit: Charles Wilkes, Narrative of the United States Exploring Expedition, vol. 1 (Philadelphia: Lea and Blanchard, 1845), 431. Smithsonian Institution Libraries Digital Collection.

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the accuracy of the modes employed in obtaining the results." And he painstakingly outlined this method, step by step, as the expedition set out to chart Pacific reefs and islands. It was a system that, in Wilkes's words, merged "the utmost expedition" and "the greatest attainable accuracy."

Historians of science like Matthew Edney and D. Graham Burnett have written much on the cultural and cartographic role of the trigonometric survey in colonial India, the jungles of British Guiana, and the Pacific Ocean, contending that it imparted powerful, if flawed, boundaries of Euro-American control. In measuring and anchoring the sea to points on land, the trigonometric survey bridged land and water in an imperial cartography. One could not be measured without the other. For the Ex. Ex. and American commercial aspirations in the Pacific, the trigonometric survey's supposed ability to order the marine environment held extraordinary cultural power.[8]

Despite the larger scientific ethos pervading the voyage, the officers and men of the expedition were enamored with the Pacific wilderness. The officers, who were nearly all young men in their late teens to mid-twenties, seemed to have a foot in both worlds. They possessed a faith in the transformative power of the trigonometric survey just as they were taken with the prospect of tropical ports of call, discovery amid Antarctic ice fields, half-clad island women, and cannibals. "Behold!" Passed Midshipman Reynolds exclaimed at the outset of the voyage, "now a nation, which but a short time ago was a discovery itself and a wilderness, is taking its place among the enlightened of the world, and endeavouring to contribute its mite in the cause of knowledge and research. For this seems the age in which all men's minds are bent to learn all about the secrets of the world which they inhabit." For men like Reynolds, the connection seemed clear. The settlement of North America had banished wilderness from the land, and now the Ex. Ex. was striking out across the ocean to claim that watery wilderness for the United States.

The voyage through the Pacific from March 1839 to May 1840 reads as one long commentary on the political, social, cultural, and environmental changes coursing through the Pacific Ocean. Wilkes, Reynolds, and the other officers seized the legacy of James Cook, the British explorer whose three voyages in the late eighteenth century ushered the Pacific Ocean into the Euro-American maritime world. They followed Cook's wake, knowing, on both their real and imagined charts, where they were in reference to his track. In Antarctica, they sought but failed to surpass Cook's fabled "Ne Plus Ultra," the southernmost point at which he had been turned back by ice in 1774. Still, the Americans charted fifteen hundred miles of coastline and determined the existence of that continent. In Fiji, they went where even Cook had balked for fear of the reefs. During the summer of 1839, the Ex. Ex. visited Tahiti and Samoa, two island groups that the Americans perceived to be in

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various states of cultural flux. Samoa was, to Reynolds, a kind of "Eden" full of "dancing nymphs." Here was one more aspect of wilderness, put in stark contrast to places like Tahiti, which, as a favorite port of call for mariners, missionaries, and castaways, had seemed to lose much of its romance.[9] Wilderness could be terrifying, but it also celebrated the primitive. Places like Samoa seemed remote paradises isolated by the vastness of the ocean and untouched by the corrupting influence of the modern world.

All the while, the men of the Ex. Ex. charted coastal waters, delineating the reefs and other hazards to navigation and extending their survey to the indigenous people themselves. In some cases, they invested charts with extraordinarily broad powers. One, produced from the expedition's visit to the Paumatu Islands of the South Pacific in 1839, shows how environment and culture were inextricably bound together in the expedition's cartography. The chart appears in Wilkes's *Official Narrative*

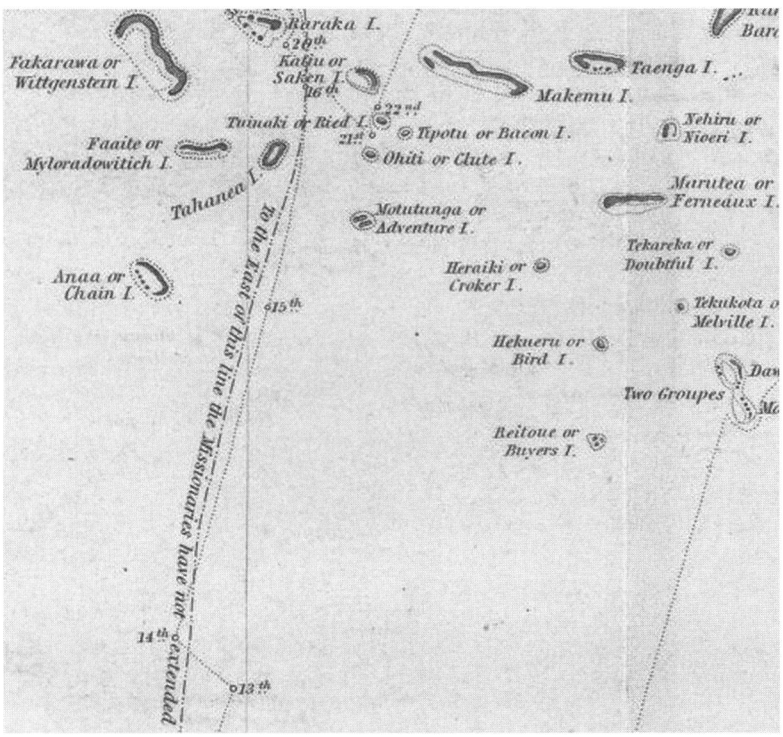

Figure 2: "Low Archipelago or Paumatu Group by the U.S. Ex. Ex. 1839." Wilkes's chart of the Paumatu Islands represents both the cultural and environmental changes occurring in the Pacific Ocean at midcentury. The chart here delineates the influence of Euro-American missionaries. Credit: Charles Wilkes, Narrative of the United States Exploring Expedition, vol. 1 (Philadelphia: Lea and Blanchard, 1845). David Rumsey Map Collection.

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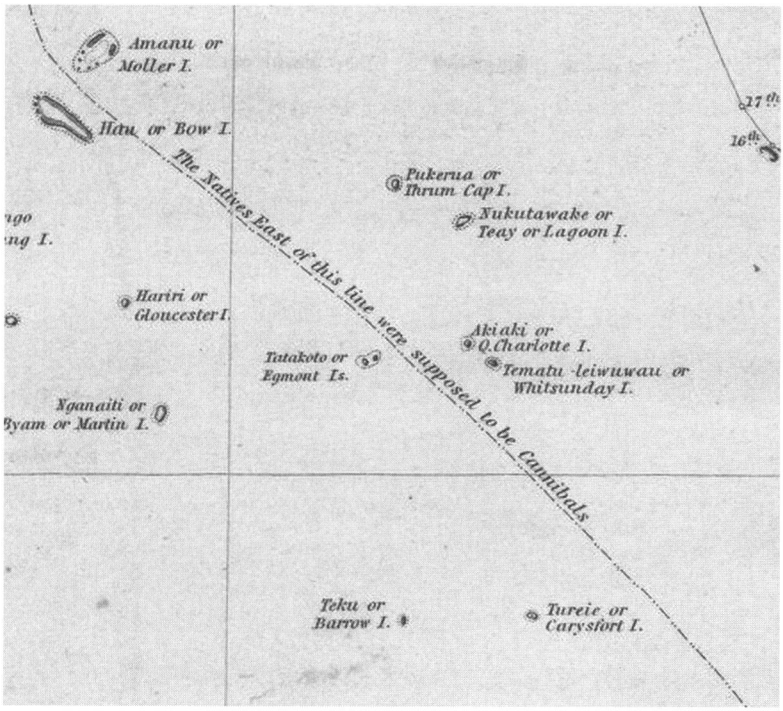

Figure 3: "Low Archipelago or Paumatu Group by the U.S. Ex. Ex. 1839." Cannibalism, as it appears on the Paumatu Chart. Charts were extraordinarily malleable representations of the marine environment and American commercial intentions in the Pacific Ocean. Credit: Charles Wilkes, Narrative of the United States Exploring Expedition, vol. 1 (Philadelphia: Lea and Blanchard, 1845). David Rumsey Map Collection.

of the United States Exploring Expedition, a five-volume work first published in 1844 and intended for mariners as well as a broader public audience. In this chart shown in figures 2 and 3, the archipelago is bisected by two dotted lines. One marks the farthest reach of Euro-American missionizing. The other identifies those islands in the group still thought to be mired in cannibalism. Here the chart emerges as an extraordinarily adaptable tool of American commercial empire, capable not only of saving a ship from wreck with the total loss of property and life, but also saving the shipwrecked themselves from a grisly fate at the mouths of supposed cannibals. That cartography had the ability to delineate culture—an amorphous thing in itself—speaks to the assumptions that pervaded American naval science as well as the nation's expanding commercial empire in the Pacific. Charts were primarily tools of navigation, but they might also be made to document the process of civilization as the Pacific entered the imagination of American mariners and the public more broadly.

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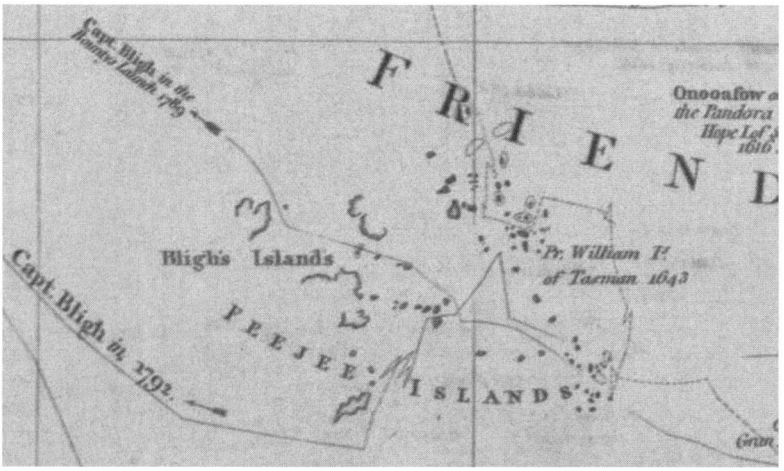

Figure 4: Aaron Arrowsmith's "Chart of the Pacific Ocean," 1798. Arrowsmith's chart shows the limits of Euro-American cartographic knowledge in the Fiji Islands, which had not greatly changed when the Ex. Ex. arrived in 1840. Credit: Geography and Map Division, Library of Congress, G9230 1798.

WILDERNESS IN THE FIJI ISLANDS

Nowhere was the link between environment and culture more compelling than the Fiji Islands. Spread across three hundred square miles of the southwest Pacific, the Fijis were perhaps the most notorious wilderness of the maritime world. The islands had entered the maritime imagination for their dangerous reefs and the apparent savagery of the people. As Melville scholar Mary K. Bercaw Edwards has written, the Fijis occupied a liminal space "at the edge of the lands known to civilized men." In both a geographic and an imagined sense, the islands were on the periphery of America's growing maritime empire. Fiji's waters were a maze of uncharted hazards. Many ships had vanished there "for want of a proper survey and sailing directions," Reynolds remarked in his journal.

The charts of the islands were all poor. One by the British cartographer Aaron Arrowsmith, popular among mariners, shows the limits of hydrographic knowledge in the Fijis. The islands, despite the tracks of various European explorers, remained incomplete, obscured by blank spaces. Although the Arrowsmith chart dated from the late eighteenth century, little had changed when the Ex. Ex. arrived in May 1840. Reynolds noted that another of the expedition's charts was little more than "a frightful display of rocks and reefs garnished here and there with notices such as 'brig Eliza lost'; 'Am[erican] brig lost;' etc. etc. etc." The chart itself was a testament to the dangers of the marine environment and the limits of navigational knowledge. Vessels had been vanishing in the Fiji Islands since the turn of the century when

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American mariners began to appear in greater numbers, lured first by sandalwood and later by bêche-de-mer, a cured sea slug lucrative in the China trade. The increasing American commercial presence was hampered by hydrographic inaccuracies that, in part, gave the Fijis their fearsome reputation.[10]

The newspapers of maritime New England were littered with accounts of shipwreck. "Capt. Evans of the British whale ship *Albion* has discovered, by a too intimate acquaintance with it, a coral reef," reported the *Salem Gazette* in 1835, "about 50 miles west from the N.W. isles of the Fegees. It is about twice a ship's length, of dark color, eight feet under water at low tide, and not to be seen at a distance of more than 100 to 200 feet." Lying concealed just below the water's surface with little more to indicate the danger than perhaps a slight discoloration of the water, mariners like Captain Evans were at the mercy of their charts. By account of the New England and New York papers, the Fijis claimed at least nineteen American vessels between 1809 and 1866, and there were likely more.[11]

Related to the reputation of Fiji's marine environment was the perceived savagery of the people themselves, which sailor yarns had spun into tales of cannibalism. To American mariners of the day, the Fijis were known widely as the "Cannibal Isles." Infused with mystery, terror, and usually some measure of morbid curiosity, the Fijian cannibal seemed the archetypal wilderness savage. "From what I have seen and heard, I think they are the most treacherous and cowardly people on the face of the Earth," remarked Passed Midshipman George Colvocoresses, another officer in the expedition. "I do not like these people," Lieutenant George Foster Emmons concurred, "they are ugly, disgustingly dirty, and cannibals besides." With headlines reading "Distressing murders at the Feejee Islands" and "Massacre at the Feegee Islands," the American press perpetuated the islands' notoriety. "The Fejee Islanders are spoken of by those who have visited them as the most treacherous of any in the Pacific Ocean," wrote the *Essex North Register* of Newburyport, Massachusetts, in April 1836. "All the accounts we have from the Fejees tell of their inhuman treachery."[12]

The Fijian cannibal became something of a cultural spectacle in antebellum America. In 1836, for example, the *Lynn Register* reported the arrival of Birilip, "a young native of the Feegee Islands" brought to the United States by a Salem captain and on display at the Baltimore Museum. In 1851 the Essex Institute of Salem exhibited the tooth of a Fijian chief, reputed to be from the mouth of "the greatest cannibal that ever lived." In 1842, just as the Ex. Ex. returned to New York City with its own trove of Fijian specimens, P. T. Barnum began touting his latest fabricated marine curiosity, the Fiji Mermaid. Historian Ann Fabian has linked Barnum's mermaid to the Fiji rage then gripping New York City and the country upon the expedition's arrival. It was, of course, no coincidence that Barnum associated this creation with

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Figure 5: "Wild Feejee Man." The men of the Ex. Ex. were interested in surveying all aspects of the Fijian wilderness including the perceived savagery of the Fijian people. Credit: Charles Wilkes, Narrative of the United States Exploring Expedition, vol. 3 (Philadelphia: Lea and Blanchard, 1845), 291. Smithsonian Institution Libraries Digital Collection.

the Fiji Islands. Of all the waters in all the seas of the world, so fantastic a creature could only be Fijian. The islands' reputation as a maritime wilderness—as perhaps one of the most savage destinations in the world—pervaded the maritime imagination and American culture generally. The Fijian and the savage were synonymous.[13]

When the Ex. Ex. arrived in the Fijis in May 1840, the islands were still abuzz with the tragedy of the *Charles Doggett*, a bêche-de-mer brig out of Salem that had been overtaken by a group of Fijians in 1836. In fact, among the memorials sent to Congress as it considered outfitting an expedition was one from the merchants of Salem, pressing not only for more accurate charts, but for some American naval presence among the islands to seek restitution for the loss of the *Charles Doggett*. The Fijians killed eight of its crew. One was said to have been eaten outright. The survivors bartered for the bodies of the others, which they buried at sea. But, in a gruesome turn, the corpses had floated to the surface and fell again into the hands of the Fijians who "devoured them all," according to Wilkes's sources. The attack on the *Charles Doggett* was only the most recent event to underscore the dangers that mariners faced in the Fijis. In fact, during the course of the expedition's survey, the American whale ship *Shylock* hit a reef, prompting Reynolds to write home that "the number of Americans and other whites that have been destroyed by the Fegees is so great, that if the Islands were to be depopulated entirely the retribution would not be enough to repay the loss of life and property."[14]

The Fiji survey fused the various strands of the Fijian wilderness from the land to the surrounding waters. The environment of jagged

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foam-covered reefs and the cannibal customs of the people ashore were mutually reinforcing specters. Mariners rarely spoke of one without referencing the other. "The people are generally believed to be ferocious cannibals," Reynolds observed, "and the numerous reefs and shoals and labyrinths of rocky passages among the cluster are so many snares for the seaman's destruction." At the end of May, Reynolds sighed, "well we are among the Feejees, and have not been killed, nor eaten, nor wrecked yet." The environmental hazards offshore tended to lend credence to the rumors that the Fijians might actually eat people. And the cannibals on the beach only made the environmental dangers more menacing.

Indeed, the question of cannibalism became a central focus of the survey itself. Even as Wilkes and his men set out to chart the South Pacific, their curiosity in the natural world was much broader. The men, Reynolds wrote, were "anxious to have the thing settled without a doubt," referring to the question of cannibalism. His first impression of the Fijians is telling. "The natives began to appear on the beach," he wrote, "and we took our first look at the Feejees—the *survey* was unsatisfactory—for they were ill-looking beyond conception" [italics added]. It was probably not coincidental that Reynolds couched his cultural assessment in hydrographic terms. Like the chart of the Paumatus, the Americans intended to chart Fijian reefs and cannibals into their collective knowledge of the marine environment.[15]

THE FIJI SURVEY

Wilkes began the survey not with science, but diplomacy. The Ex. Ex. represented the combined scientific, diplomatic, and military authority of the United States. Wilkes hoped to impress this on the Fijians from the outset. Wilderness could only be dispelled with order, and that is precisely what Wilkes intended to convey when he welcomed Tanoa, the most powerful chief in the islands, aboard the American flagship *Vincennes* on May 13. To the tune "King of the Cannibal Islands," Wilkes ushered the Fijian to his cabin. He had the ship dressed out in flags and the men in their uniforms; he paraded the ship's Marines and fired its cannon. Adorned in all the pomp and regalia of an American man-of-war, *Vincennes* itself symbolized the order that Wilkes hoped to impress and impose on the islands. It was the kind of display, Reynolds observed, "that always pleases a savage." Tanoa appeared satisfied by the demonstration and not a little frightened. Of course, Wilkes hardly minded if he struck fear in the chief while extending these obligatory honors. The next day, Tanoa returned to affix his mark on a commercial treaty between the United States and Fiji. The agreement regulated commercial interactions. It set port and pilot fees, recruited the Fijians' aid in corralling deserters, banned the importation of alcohol, and established the safety of American mariners shipwrecked

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in the islands. The Americans sought the kind of ordered commercial activity that, they believed, would naturally follow in the wake of their charts. Science and diplomacy went hand in hand.[16]

Wilkes, meanwhile, began the survey on Ovolau, home to a small Anglo-American community and also to 2,000-foot vistas from which the officers and men could orient themselves to the coming survey. He wanted his officers, who would soon disperse among the islands, to consider their individual roles as part of the larger survey and to get a sense of the surrounding waters for themselves. Orientation, of course, was central to the trigonometric survey and also to the transformation of wilderness. "Desirous of fixing some of the main points in my own mind, as well as in that of the officers," Wilkes led his surveyors to the island's summit, which afforded sweeping views of the surrounding islands and reefs. These "could be traced for miles," Wilkes wrote of the panorama, "and every danger that could in any way affect the safety of a vessel was as distinctly marked as though it had been already put upon our charts." The men had yet to take a sighting or measure a baseline in the Fijis, but the imaginative transformation had already begun. From this vantage atop Ovolau, the surveyors had literally raised themselves above the wilderness. As Wilkes suggested, it was as if the sea itself had become the chart and the Americans, the omnipotent navigators, looking down on it. Such was the power of exploration to merge representation with reality in the imagination.[17]

But surveying involved more than sketching tropical panoramas. Rather, the trigonometric method was a complex science, demanding discipline, precision, and choreographed cooperation among men and boats. As D. Graham Burnett has written, naval discipline lent itself particularly well to the demands of the survey, and it reflected the order that the Americans sought to impose. By the time they set to work in the Fijis, the men knew the routine. Wilkes's directions had his officers command small whaleboats or launches manned by six to ten sailors, stocked to the gunwales with compasses, sextants, theodolites, and weapons in the event of Fijian attack. Working in pairs, with a larger ship of the expedition or alone, these boats wove their way among Fiji's reefs and islands. The officers measured angles, sounded for depths using a measured lead line, and calculated distances by the speed of sound calculated by the shot of a cannon or blunderbuss from one point to another. They returned their observations to their commanding officers at the end of each sub-survey. Wilkes then anchored these to the whole by a central position of latitude and longitude taken by astronomic observation from a makeshift observatory on Ovolau. The whole process was thus a complex orchestration—signal flags aflutter, boats tacking, and officers busily taking azimuths, barking orders, and jotting calculations. The Americans were certain that such attention to hydrographic practice assured precision and, by

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extension, the degree to which the chart could be trusted to reproduce the marine environment on paper.[18]

Orders in hand, the Americans struck out across the Fijis to chart hazards and safe passages for maritime navigation. Lieutenant Cadwalader Ringgold in the brig *Porpoise* had already begun a survey of the Laus, an island group to the southeast of Fiji's main islands. "In discharging this duty," Wilkes ordered Ringgold, "I would call your attention particularly to the necessity of great accuracy in the bearings of the different islands, shoals, and reefs." The chart accompanying these orders was, in Wilkes's words, really "only an apology for one. All due caution is necessary in sailing over space that you have not already explored." Wilkes, meanwhile, ordered boats from the *Vincennes* to survey the northern coast of the large island Viti Levu. Another survey under the direction of Lieutenant George Foster Emmons proceeded along the southern coast. They then turned to Vanua Levu, the second of Fiji's two large islands. The schooner *Flying Fish*, meanwhile, headed north of Viti Levu to chart the string of small islands there. Explicit orders from Wilkes accompanied each sub-survey, identifying the reefs and harbors that required special attention, reminding his officers of the need for precision, and urging caution in all cases.[19]

For three hot, mosquito-infested months, the ships and boats worked among the islands to the benefit of mariners following in the expedition's wake. With his boats off Viti Levu, Emmons found one harbor

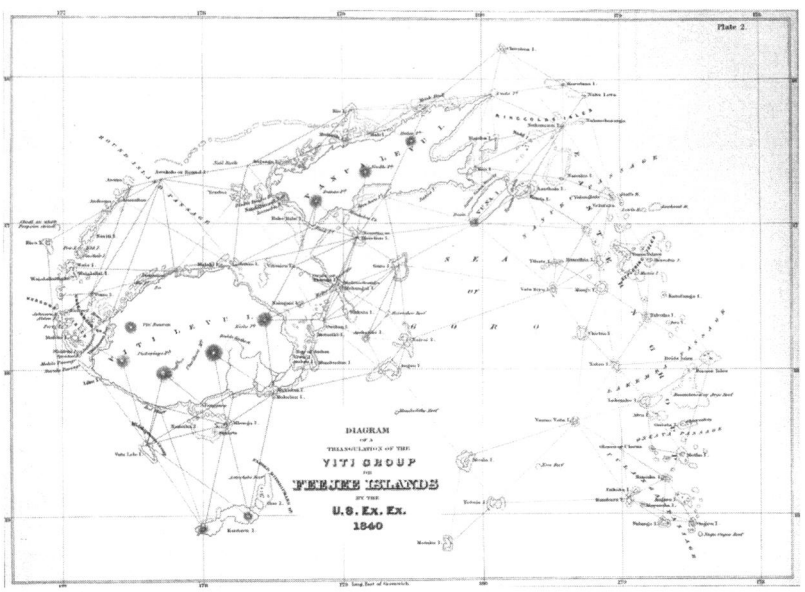

Figure 6: "Diagram of the Triangulation of the Viti Group or Feejee Islands by the U.S. Ex. Ex. 1840." The survey of the Fiji Islands framed the group in geometrical triangulations, filling in blank spaces in the American maritime imagination with the ordered precision of cartographic representation. Credit: Charles Wilkes, *Hydrography,* vol. 23 (Philadelphia: C. Sherman, 1861). Smithsonian Institution Libraries Digital Collection.

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Figure 7: A section from the expedition's chart of the north side of Vanua Levu shows depth soundings along lines of triangulation and a note to mariners: "The passages through these reefs are all safe." Credit: United States Exploring Expedition, Atlas of Charts, vol. 1 (Philadelphia: C. Sherman, 1850). Geography and Map Division, Library of Congress, G2860.W5 1850.

"clear of shoals." He noted that it was "a good holding ground . . . well sheltered" with "ease of access and egress" and "an abundance of wood and water." Other officers reported similar discoveries. Mariners coveted this kind of environmental knowledge. "Many of [Fiji's] fine harbors have never been visited," Wilkes admitted, and he now intended the expedition's charts to call attention to the group's "well-sheltered and commodious harbors" and the "large number of anchorages and passages through the reefs." Shelter, commodiousness, passages—Wilkes's own words and their representations on the charts were central in reimagining the sea. Wilkes was talking in the ordered discourse of American maritime commerce, which he believed derived from the expedition's scientific methods. Other officers offered similar assessments. Lieutenant George Sinclair later remarked that the Fijis were "as well surveyed as any group in the Pacific." Invoking the cartographic beliefs of the day, Lieutenant Emmons hoped that the Fijis "may hereafter find their *true position* on the charts." The survey seemingly brought order to stretches of reef-strewn sea that were once largely unknown. With chart in hand, the mariner could reimagine the Fijis, not as a wilderness, but as a refuge from the dangers of the ocean and the Fijians themselves.[20]

All this looked good on paper, but the Americans encountered environmental and human challenges that belied their assumptions. The sea

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was too vast, the dangers too numerous, the time too short, and the environment too dynamic to accomplish a comprehensive and precise survey. "We were absent . . . ten days," wrote Lieutenant Sinclair, regarding one survey, "but were not able to do more than half the work that was allotted to us for the simple reason that it was more than twice as much as it was possible to do in that time." Faced with surveying a maze of reefs, he shrugged, "it would have required an age to fix them all and sound out at the same time." Emmons simply accepted the futility of the work. "By dark, our survey was completed—not indeed as I should wish—but as well as the time allowed would permit and well enough for all practicable purposes." Even as the expedition departed the Fijis in August, Wilkes ordered the schooner *Flying Fish* to return. "Captain Wilkes found that he had neglected fixing a certain island upon which much of the survey depended," Reynolds remarked. The expedition thus worked under constraints, environmental and other, that belied the power of science to precisely represent the marine environment. The charts would be useful—they were better than any others—but they ultimately fell short of the cartographic ideal. Of course, the finished charts betrayed neither Emmons's frustrations nor Wilkes's miscues. Bearing the authority of the United States Exploring Expedition, the charts were powerful testaments to nineteenth-century imperial science, but also to the limits of scientific understanding in a vast and dynamic marine environment.[21]

The sea itself rendered precision impossible. The chart could never hope to represent an environment in constant motion. Ocean tides and storms perpetually remade coastal waters. The boats, prone to the pitch and roll of the sea, proved unstable platforms for scientific measurement. "It was difficult in the extreme to make the observations," Reynolds groused, "the compass whirled like a top from the jumping motion of the boat . . . the seas that broke over us drenched all hands, and were sure to come as I was putting pencil to paper. We could scarce preserve our equilibrium on our seats—it is damnable." The midday sun left the brass sextants so hot that they were unworkable by bare human hands, and the men suffered from almost constant wont of food and sleep in the cramped boats. Reynolds complained of "baths of brine," and "a foothold that I could scarcely preserve from the depth I was in and the swash of the Seas." The Fijians themselves stole instruments and boats and dismantled signal flags. The marine environment was a precarious one for scientific work, undermining, with every oncoming swell, the methodical system that Wilkes had drawn up in his orders.[22]

As the survey progressed, the question of cannibalism never ranged far from American minds, and so the officers went about their work intent on settling the grisly issue once and for all. The prospect of cannibalism had animated the men from the beginning. "When we first came to the islands," Reynolds wrote, "we made particular inquiries about the

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existence and prevalence of cannibalism among the people." On July 2, in the midst of the survey, the crew of the brig *Peacock* witnessed what Wilkes and others believed to be compelling evidence. In Naloa Bay, north of Viti Levu, the sloop's crew encountered two Fijian canoes. One contained a skull "yet warmed from the fire . . . and marked with the teeth of those who had eaten of it" and the other "some roasted flesh." To the men's disgust, one Fijian appeared to chew an eyeball. This "placed it beyond all doubt," Wilkes thought. Frederick Stuart, captain's clerk aboard the *Peacock*, agreed. "Just from what we have seen and heard, and secondly from the phrenological evidence," he concluded, "we have too strong proof." The naturalists quickly procured the grisly specimen for "a fathom of blue cloth," in Wilkes's words. Here was another instance of cartographic language creeping into the measure of the Fijians themselves.

The cannibalized skull joined other discoveries of cannibal cooking pots and charred bones as seemingly irrefutable evidence of the practice. At the National Institution for the Promotion of Science in Washington, it went on display next to the pickled head of another Fijian who had led the raid on the *Charles Doggett*, been captured, and died on the expedition's return. Such a display, argues Fabian, made the link between American commerce and Fijian cannibalism direct. Wilkes concluded in the official narrative that cannibalism in Fiji was "practiced from habit and taste. So highly do they esteem this food," he was certain, "that the greatest praise they can bestow on a delicacy is to say that it is as tender as a dead man." Whether the Fijians were actually cannibals and, if so, for what purpose, is a question that historians and anthropologists have long debated. There is no doubt, however, that cannibalism fascinated the Americans like nothing else.[23]

On July 23, three weeks after the discovery of the skull, the Americans' collective fears about the Fijian wilderness became real. On the island of Malolo, Fijians killed two American officers, Lieutenant Joseph Underwood and Midshipman Wilkes Henry—nephew of the commander—as they landed their surveying boat. In a confused scuffle, the Fijians bludgeoned the officers to death before nearby boats could come to their aid. To Wilkes, this was a personal blow and one that seemed to undermine the very order that he and his men had worked so long to establish by scientific and diplomatic means. It was only the most severe of many signs that the Fiji Islands would not so easily be charted into the American maritime world.

At stake was the question of who would control the sea and the human and material flotsam that washed up from it. The Americans, by chart and diplomacy, were in the process of claiming these waters for themselves, proceeding from the assumption that the Fijis would become a safe commercial space for American shipping. But their vision of the marine environment represented just one of many competing claims to these waters. The Fijians themselves, the Americans

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learned, considered anything that washed up from the sea to be a gift from their gods. "All that it contained," recorded Passed Midshipman Colvocoresses, referring to wrecks and beachings, "is considered as belonging to the people of the district where the accident happens." Such a notion represented a vexing problem for American commerce in the islands. The Ex. Ex. entered seas already governed by indigenous meanings. The Americans, however, proceeded to survey and chart the marine environment with little regard for contrary and competing ideas. Indeed, cartographic science and the idea of wilderness assumed that uncharted waters were little more than blank spaces on which American explorers and surveyors should impose their own meanings.[24]

Desperate to assert control, Wilkes resorted to the military power of his expedition. Historian Lisa Brady has written about the Union Army's destruction of the Southern landscape during the American Civil War as a deliberate strategy to defeat the Confederacy by turning the land into a wilderness. In this case, however, Wilkes and his men intended not to create wilderness, but to raze it and compel the Fijians into submission. Command of the punitive force fell to Lieutenant Ringgold with directions from Wilkes that "every man or native capable of using a club, or stone is to be destroyed." On July 24, Ringgold set out with three divisions of seamen and Marines in a scorched earth march across Malolo, but not before the *Flying Fish*, which Wilkes ordered to cover the landing from the water, grounded on a shoal. The Americans pressed on, setting fire to coconut and yam fields and flattening two villages. At the village of Sualib, the Fijians mustered a defense behind ditches and palisades, but the assault of American musketry and Congreve Rockets proved overwhelming, and they fled into the jungle. Nearly a hundred Fijians perished; one American was injured. The expedition had reduced the island to smoldering ruin. "Everything contained within the walls was utterly destroyed," remarked Assistant Surgeon Silas Holmes, "it being the object . . . to make the island desolate." In many ways, the attack was a bitter climax to the more general weariness the men had experienced, working for two and a half months in a trying marine environment under almost constant fear of Fijian attack. The survey had turned deadly, and Wilkes turned his expedition into a military force capable of imposing the order that had otherwise eluded the expedition during the survey.[25]

The use of force in conquering the Fijian wilderness was only the most severe attempt by which the Ex. Ex. sought to control and stake claim to the Fiji Islands. Diplomacy, science, and military power went hand in hand. The survey had forced Wilkes to summon all the means at his disposal. The attack on Malolo, of course, had historical precedents in a muscular naval defense of American lives and commerce in the Pacific throughout the nineteenth century. In the context of the expedition, however, it was more than this. Wilkes, who was compelled to defend

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his actions on Malolo, later claimed that "the punishment was sufficient and effectual." Not surprisingly, he cited both the safety of "our countrymen on their adventurous voyages" and the Fijians' "horrid appetite for cannibal repasts" as justification. When a delegation of Fijian survivors met Wilkes on the afternoon of the twenty-fourth, asking for mercy and an end to the violence, they advanced toward the Americans on their hands and knees. Their leader, Wilkes wrote with satisfaction, "begged pardon, supplicating forgiveness, and pledging that they would never do the like again to a white man." In Wilkes's mind, the attack had proved its worth. "Such has been its effect on the people of Malolo," Wilkes later boasted, "that they have since been the most civil, harmless, and well-disposed natives of the group." This, of course, had been Wilkes's intention all along, and if he could not impose American commercial power by treaty or survey, he would compel it through violence.[26]

THE BOUND[LESS] SEA

Despite the survey's flaws and the parting shot of military force, it was the charts themselves that most held the potential to transform the marine environment of the Pacific Ocean. Facing several courts-martial after the expedition returned to New York City in the summer of 1842, Wilkes set to work on the charts, believing that they would seal the expedition's legacy in the annals of science and navigation. The charts, he wrote, were "the best encomium I can bestow on the united work of the officers and men." There were 180 of them, taken from 234 surveys, bound in a two-volume Hydrographic Atlas. They covered coastal waters that spanned the Pacific from Tierra del Fuego to the Philippines, identifying safe channels through reefs, fresh water, and anchorages where sea-weary mariners might repair and re-provision their vessels. In some cases, charts delineated aspects of indigenous culture that most concerned mariners. As on the Paumatu chart, cannibalism itself could be transcribed into the cartography of American commercial empire. The charts represented the collected knowledge of four years of surveying and exploration set down in the graticule of latitude and longitude, bracketed by triangles, quantified in depth soundings, and emblazoned with the seal of the United States Exploring Expedition. They were powerful testaments to American intentions in the mid-nineteenth century and just how closely those intentions were linked to knowledge of the marine environment.[27]

The expedition's hydrographic gaze, of course, was primarily focused on coastal marine environments where hazards to navigation were the most imminent threats to shipwreck, but taken in the larger context of naval science in this era, the Ex. Ex. represented one aspect of a much broader effort to understand, chart, and use the sea. Indeed, as the Ex. Ex. returned to New York City, Lieutenant Matthew Fontaine Maury

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was taking command of the Naval Observatory, producing his *Wind and Current Charts* that propelled clipper ships around Cape Horn to California and Asia. Maury was interested not primarily in coastal waters, but in the broad physical characteristics of the ocean environment from the greatest depths to the atmosphere above. Subsequent expeditions to the North Pacific, the Amazon River, and the Dead Sea evinced growing American maritime and naval aspirations in the antebellum era. The Ex. Ex. was only part of a much broader effort to know and use the sea during the mid-nineteenth century. For an American maritime community reaching its pinnacle in size, wealth, and power, charts proved a powerful alternative to the idea of wilderness.[28]

The charts themselves imparted meaning to the sea. Amid so many indigenous places, the navigator spotted Reynolds Island, Reynolds Peak, Emmons Island, and a multitude of others so that every officer had himself a place in this cartography of exploration. The Ex. Ex. was staking claim to the Pacific by name, which was the prerogative of the explorer often regardless of other, preexisting meanings. In many cases, particular islands went by various conflicting titles, reflecting the often confused mingling of maritime claims. There was also Disappointment Bay, Useless Bay, Cape Disappointment, and the Adventure Isles, which suggested to mariners something of the nature of sailing in those waters. More than an ocean that existed outside of time and human presence, the expedition's charts infused the marine environment with a sense of history. They told stories that lasted long after the ship's wake disappeared into watery oblivion. The Fiji chart bore Henry Island in the Underwood Group in memory of the officers who

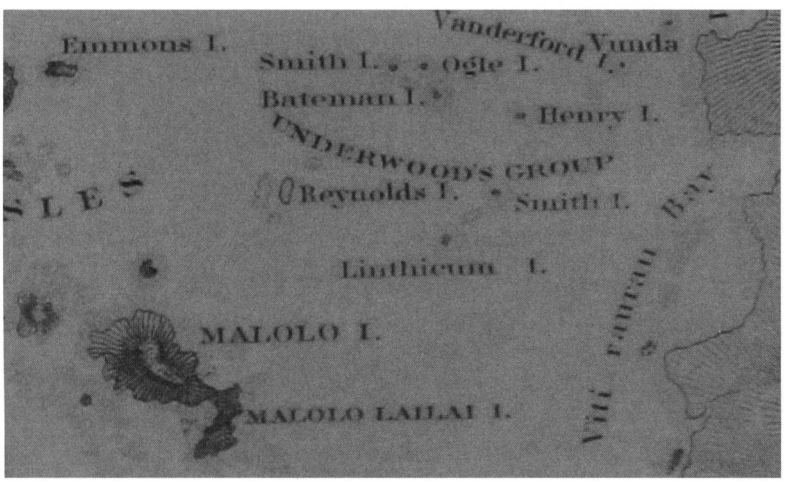

Figure 8: Emmons Islands, Reynolds Island, and Henry Island in Underwood's Group from a section of the Fiji chart, showing how the cartographic act of naming imparted meaning, narrative, and an American claim to the islands. Credit: United States Exploring Expedition, Atlas of Charts, vol. 1 (Philadelphia: C. Sherman, 1850). Geography and Map Division, Library of Congress, G2860.W5 1850.

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had been slain there. The waters off Malolo, Reynolds remarked, took the name Murderer's Bay, which "served as a sad memorial of their own loss, of the disposition of the people, and as a warning to future adventurers." The chart was an extraordinarily adaptable, multifaceted tool of American commercial empire. It was a potent way for Americans to make sense of a marine environment that otherwise appeared vast, eternal, and outside the bounds of human control. In dismissing wilderness with scientific authority, nautical charts were not only navigational tools, but texts on which the Pacific world was written and rewritten.[29]

Yet the sea environment flouted American cartographic intentions. As the men of the Ex. Ex. soon grasped firsthand, the ocean was not static. On August 15, 1840, as the Ex. Ex. departed the Fijis, Lieutenant Sinclair wrote in his journal that "this whole group, with its attendant reefs, has been surveyed by the Expedition in a manner, which must reflect great credit upon it, when all things are taken into consideration." But, he added, "I hope and trust that Capt Wilkes will not claim too much for the chart." Sinclair was proud of the work, but in many places, he conceded, it "might more justly be called a sketch than a survey. I would advise navigators to keep their eyes open when running in this group," he concluded, "even if they should have a cargo of charts aboard." After four years of surveying and circumnavigation, of ice-bound discovery, and bloody conflict, the Ex. Ex. returned with unprecedented knowledge of the Pacific Ocean. Its men had charted Pacific Islands, collected the flora and fauna of Oceania, and—they thought—settled the question of cannibalism in the Fijis. The expedition represented the transformative power of science to turn the unknown into the knowable, wilderness into order. But the sea and its people also belied the assumptions of science, the precision of the trigonometric survey, and the belief that the United States could stake an uncontested claim to the marine environment. The sea remained—and in many ways it seems to remain—a mysterious, elusive, eternal environment long after humans have claimed to control it.[30]

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Notes

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